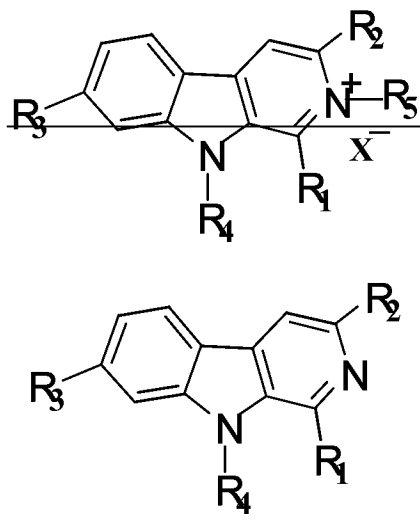


The listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A compound of the following formula (I)



and its pharmacologically acceptable salts,

wherein

R₁ is selected from the group consisting of hydrogen and linear or branched C₁₋₆ alkyl;

R₂ is selected from the group consisting of carboxyl, ester group, carboxylate, acylamino and linear or branched C₁₋₆ alkoxycarbonyl;

R₃ is selected from the group consisting of hydrogen, hydroxyl, linear or branched C₁₋₆ alkoxy and carboxylic esters, excluding methoxy;

R₄ is selected from the group consisting of C₆₋₁₀ arylalkyl, mono- or multi-substituted C₆₋₁₀ arylalkyl, and wherein the substituents are defined to be halogen, C₁₋₄ linear or branched alkyl, C₁₋₄ linear or branched alkoxy, nitro, amino, hydroxyl and carboxyl;

~~R₅ is selected from the group consisting of hydrogen;~~

~~X is selected from the group consisting of pharmacologically acceptable organic or inorganic acid radical, wherein the organic acids include Lewis acid,~~

~~or R₅ and X do not co-exist; and~~

the following ~~compound is~~ compounds are excluded:

Ethyl 9-benzyl- β -carboline-3-carboxylate,

3-aminocarbonyl-9-benzyl-1-methyl- β -carboline, and

Ethyl 9-benzyl-1-methyl- β -carboline-3-carboxylate.

2. (Canceled)

3. (Previously presented) The compound according to claim 1, characterized in that R_1 is selected from the group consisting of hydrogen, C_{1-4} linear or branched alkyl.

4. (Previously presented) The compound according to claim 3, characterized in that R_1 is selected from the group consisting of hydrogen, C_{1-2} alkyl, phenyl- C_{0-4} linear or branched alkyl.

5. (Previously presented) The compound according to claim 4, characterized in that R_1 is selected from hydrogen, methyl.

6. (Canceled)

7. (Original) The compound according to claim 5, characterized in that R_1 is hydrogen.

8. (Original) The compound according to claim 5, characterized in that R_1 is methyl.

9. (Currently amended) The compound according to claim 1, characterized in that R_2 is selected from the group consisting of carboxylic acid, carboxylic metal salts, C_{1-6} linear or branched alkoxy carbonyl, and when R_2 is a carboxylic metal salt, ~~R_5 and X are not present simultaneously.~~

10. (Currently amended) The compound according to claim 9, characterized in that R_2 is selected from the group consisting of hydrogen, carboxylic acid, carboxylic metal salts, C_{1-4} linear or branched alkoxy carbonyl and when R_2 is a carboxylic metal salt, ~~R_5 and X are not present simultaneously.~~

11. (Previously presented) The compound according to claim 10, characterized in that R_2 is selected from the group consisting of hydrogen, carboxylic acid, carboxylic alkali metal salts, C_{1-2} alkoxy carbonyl.

12. (Canceled)

13. (Canceled)

14. (Original) The compound according to claim 12, characterized in that R_2 is carboxylic acid.

15. (Canceled)

16. (Original) The compound according to claim 12, characterized in that R_2 is ethoxycarbonyl.

17. (Previously presented) The compound according to claim 1, characterized in that R_3 is selected from the group consisting of hydrogen, hydroxyl, C_{1-6} linear or branched alkoxy.

18. (Original) The compound according to claim 17, characterized in that R_3 is selected from the group of hydrogen, hydroxyl, and C_{1-4} linear or branched alkoxy.

19. (Original) The compound according to claim 18, characterized in that R_3 is selected from the group consisting of hydrogen and C_{1-2} alkoxy.

20. (Original) The compound according to claim 19, characterized in that R_3 is hydrogen.

21. (Previously presented) The compound according to claim 1, characterized in that R_4 is selected from the group consisting of C_{6-10} aryl- C_{1-6} linear or branched alkyl, and mono- or multi-substituted C_{6-10} aryl- C_{1-6} linear or branched alkyl.

22. (Previously presented) The compound according to claim 21, characterized in that R_4 is selected from the group consisting C_{6-10} aryl- C_{1-4} linear or branched alkyl, and mono- or multi-substituted C_{6-10} aryl- C_{1-4} linear or branched alkyl.

23. (Previously presented) The compound according to claim 22, characterized in that R_4 is selected from the group consisting of phenyl- C_{1-4} linear or branched alkyl, and mono- or multi-substituted phenyl- (C_{1-4}) linear or branched alkyl.

24. (Original) The compound according to claim 23, characterized in that R_4 is selected from the group consisting of hydrogen, C_{1-4} linear or branched alkyl, phenyl- C_{1-2} alkyl, and mono- or multi-substituted phenyl- C_{1-2} alkyl.

25. (Canceled)

26. (Canceled)

27. (Currently amended) The compound according to claim 1 ~~25~~, characterized in that R₄ is benzyl.

28. (Currently amended) The compound according to claim 1 ~~25~~, characterized in that R₄ is pentafluorobenzyl.

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Currently amended) The compound according to claim 1, characterized in that R₁ is selected from the group consisting of hydrogen, C₁₋₆ linear or branched alkyl; R₂ is selected

from the group consisting of carboxylic acid group, carboxylates, C₁₋₆ linear or branched alkoxycarbonyl; R₃ is selected from the group consisting of hydrogen, hydroxyl, C₁₋₆ linear or branched alkoxy; R₄ is selected from the group consisting of C₆₋₁₀ aryl-C₁₋₆ linear or branched alkyl, and mono- or multi-substituted C₆₋₁₀ aryl-C₁₋₆ linear or branched alkyl; ~~R₅ is selected from the group consisting of hydrogen; X is selected from the group consisting of halogen, sulfonic acid group, sulfuric acid group, nitroxyl, and phosphate group; or R₅ and X do not co-exist simultaneously.~~

44. (Currently amended) The compound according to claim 43, characterized in that R₁ is selected from the group consisting of hydrogen, C₁₋₄ linear or branched alkyl; R₂ is selected from the group consisting of hydrogen, carboxylic acid group, carboxylic alkali metal salts, C₁₋₄ linear or branched alkoxycarbonyl; R₃ is selected from the group consisting of hydrogen, hydroxyl, C₁₋₄ linear or branched alkoxy; R₄ is selected from the group consisting of C₆₋₁₀ aryl-C₁₋₄ linear or branched alkyl, and mono- or multi-substituted C₆₋₁₀ aryl-C₁₋₄ linear or branched alkyl; ~~R₅ is selected from the group consisting of hydrogen; X is selected from the group consisting of halogen, sulfuric acid group, sulfonic acid group, nitroxyl; or R₅ and X do not co-exist simultaneously.~~

45. (Currently amended) The compound according to claim 44, characterized in that R₁ is selected from the group consisting of hydrogen, C₁₋₂ alkyl; R₂ is selected from the group consisting of hydrogen, carboxylic acid group, carboxylic alkali metal salts, C₁₋₂ alkoxycarbonyl; R₃ is selected from the group consisting of hydrogen, hydroxyl, and C₁₋₂ alkoxy; R₄ is selected from the group consisting of phenyl-C₁₋₂ alkyl, and mono- or multi-substituted phenyl-C₁₋₂ alkyl; ~~R₅ is selected from the group consisting of hydrogen; X is halogen; or R₅ and X do not co-exist simultaneously.~~

46. (Currently amended) The compound according to claim 45, characterized in that R₁ is selected from the group consisting of hydrogen, methyl; R₂ is selected from the group consisting of carboxylic acid group, sodium or potassium carboxylate, and ethoxycarbonyl; R₃ is selected from the group consisting of hydrogen, hydroxyl, and C₁₋₂ alkoxy; R₄ is selected from the group consisting of benzyl, and pentafluorobenzyl; ~~R₅ is selected from the group consisting of hydrogen; X is selected from the group consisting of chloro, bromine and iodine; or R₅ and X do not co-exist simultaneously.~~

47. (Currently amended) The compound according to claim 46, wherein R₁ is hydrogen or methyl; R₂ is carboxylic acid group, sodium carboxylate, or ethoxycarbonyl; R₃ is hydrogen; R₄ is benzyl; ~~R₅ is hydrogen; X is chloro or bromine; or R₅ and X do not co-exist simultaneously.~~

48. (Currently amended) The compound according to claim 1, wherein R₁ is hydrogen; R₂ is

ethoxycarbonyl; R₃ is hydrogen; R₄ is benzyl; ~~R₅ is hydrogen; and X is chloro.~~

49. (Currently amended) The compound according to claim 1, wherein R₁ is hydrogen; R₂ is ethoxycarbonyl; R₃ is hydrogen; R₄ is benzyl; ~~R₅ and X do not co-exist simultaneously.~~

50. (Currently amended) The compound according to claim 1, wherein R₁ is methyl; R₂ is ethoxycarbonyl; R₃ is hydrogen; R₄ is pentafluorobenzyl; ~~R₅ is hydrogen, and X is chloro.~~

51. (Currently amended) The compound according to claim 1, wherein R₁ is methyl; R₂ is ethoxycarbonyl; R₃ is hydrogen; R₄ is pentafluorobenzyl; ~~and X do not co-exist simultaneously.~~

52. (Canceled)

53. (Canceled)

54. (Canceled)

55. (Canceled)

56. (Canceled)

57. (Canceled)

58. (Canceled)

59. (Canceled)

60. (Canceled)

61. (Currently amended) The compound according to claim 1, which is selected from the group consisting of the following compounds or pharmacologically acceptable salts thereof:

Methyl 9-benzyl- β -carboline-3- carboxylate;

Ethyl 9-benzyl- β -carboline-3-carboxylate;

Ethyl 9-(2',3',4',5',6'-pentafluoro)benzyl- β -carboline-3-carboxylate;

Butyl 9-phenylpropyl- β -carboline-3-carboxylate;

Butyl 9-benzyl- β -carboline-3-carboxylate;

Benzyl 9-benzyl- β -carboline-3-carboxylate;

9-Benzyl-3-hydroxymethyl- β -carboline;

9-Benzyl-3-acetyloxomethyl- β -carboline;

3-Carbohydrazide-9-benzyl- β -carboline;

3-[(Ethoxycarbonyl)amino]-9-benzyl- β -carboline;

Ethyl 9-(2',3',4',5',6'-pentafluoro)benzyl-1-methyl- β -carboline-3-carboxylate;

Ethyl 9-phenylpropyl-1-methyl- β -carboline-3-carboxylate;

Ethyl 9-acetophenone-1-methyl- β -carboline-3-carboxylate;

Ethyl 9-benzyl-1-propyl- β -carboline-3-carboxylate;

Ethyl 9-phenylpropyl-1-propyl- β -carboline-3-carboxylate; and

Ethyl 9-phenylpropyl-1-methyl- β -carboline-3-carboxylate.

62. (Original) The compound according to claim 61, the pharmacologically acceptable salt thereof being hydrochloride salt.

63. (Previously presented) The compound according to claim 1, which is selected from the group consisting of the following compounds or pharmacologically acceptable carboxylates thereof:

9-Benzyl- β -carboline-3-carboxylic acid;

9-(2',3',4',5',6'-Pentafluoro)benzyl- β -carboline-3-carboxylic acid;

9-Phenylpropyl - β -carboline-3-carboxylic acid;

9-Benzyl-1-methyl- β -carboline-3-carboxylic acid;

9-(2',3',4',5',6'-Pentafluoro)benzyl-1-methyl- β -carboline-3- carboxylic acid;

9-Phenylpropyl-1-methyl- β -carboline-3-carboxylic acid;

9-Benzyl-1-propyl- β -carboline-3-carboxylic acid;

9-Phenylpropyl-1-propyl- β -carboline-3-carboxylic acid.

64. (Original) The compound according to claim 63, wherein the carboxylate is a carboxylic metal salt.

65. (Canceled)

66. (Canceled)

67. (Previously presented) The compound according to claim 64, wherein the metal is Na.

68. (Previously presented) The compound according to claim 64, wherein the metal is K.

69. (Canceled)

70. (Canceled)

71. (Canceled)

72. (Canceled)

73. (Canceled)

74. (Canceled)

75. (Canceled)

76. (Previously presented) A pharmaceutical composition for treating tumors, comprising as an active ingredient at least one therapeutically effective amount of a compound of formula I according to claim 1, alone or combined with one or more pharmaceutically acceptable, inert and non-toxic excipients or carriers.

77. (Withdrawn – currently amended) A method of Use of a compound of claim 1 in the manufacture of a medicament for treating tumors in a mammalian subject, the method comprising administration of a medicament comprising a compound of claim 1.

78. (Withdrawn – currently amended) The method of use according to claim 77, wherein the tumors refer to alimentary tract tumors, including oral carcinoma, oesophagus cancer, gastric carcinoma, liver cancer and intestinal cancer tumors.

79. (Withdrawn – currently amended) The method of use according to claim 77, wherein the tumors refer to the lung cancer tumors.

80. (Canceled)

81. (Canceled)

82. (Canceled)

83. (Withdrawn – currently amended) The method of use according to claim 77, wherein the tumors refer to the cervical carcinoma tumors.

84. (Withdrawn – currently amended) The method of use according to of claim 77, ~~1 in the manufacture of a medicament combined with~~ wherein the treatment further comprises phototherapy and radiation therapy for treating tumors.

85. (New) The compound of claim 1, wherein the compound is selected from the group consisting of ethyl 9-phenylpropyl-1-methyl- β -carboline-3-carboxylate and its pharmacologically acceptable salts.